

WHAT IS CLAIMED IS:

1. A composition for removing residues from the microstructure of an object comprising:
carbon dioxide;
an additive for removing the residues;
an inhibitor for suppressing residues; and
a co-solvent for dissolving said additive and said inhibitor in said carbon dioxide
at a pressurized fluid condition.
2. The composition of claim 1 wherein the additive comprises a quaternaryammoniumfluoride.
3. The composition of claim 2 wherein the quaternaryammoniumfluoride is selected from tetramethylammoniumfluoride, tetraethylammonium fluoride, tetrapropylammonium fluoride, tetrabutylammonium fluoride, choline fluoride, and mixtures thereof.
4. The composition of claim 3 wherein the quaternaryammoniumfluoride is tetramethylammoniumfluoride.
5. The composition of claim 2 wherein the additive further comprises a quaternaryammoniumhydroxide.
6. The composition of claim 1 wherein the additive comprises quaternaryammonium hydroxide.
7. The composition of claim 1 wherein the concentration of the additive ranges from 0.001 to 0.1 weight percent.
8. The composition of claim 1 wherein the inhibitor comprises a polyhydric alcohol.
9. The composition of claim 8 wherein the polyhydric alcohol is selected from a dihydric alcohol, a trihydric alcohol, a tetrahydric alcohol, and mixtures thereof.

10. The composition of claim 9 wherein polyhydric alcohol is a dihydric alcohol.
11. The composition of claim 10 wherein the dihydric alcohol is selected from ethylene glycol, propylene glycol, trimethyleneglycol, diethyleneglycol, dipropyleneglycol, 1,2-butanediol, 1,2-butanediol, 1,4-butanediol, 2,3-butanediol, pentamethyleneglycol, hexyleneglycol, octyleneglycol, and mixtures thereof.
12. The composition of claim 11 wherein the dihydric alcohol comprises propylene glycol.
13. The composition of claim 1 wherein the co-solvent is selected from a solvent, deionized water, alcohol, and mixtures thereof.
14. The composition of claim 13 wherein the co-solvent is the solvent.
15. The composition of claim 14 wherein the solvent is dimethylacetamide.
16. The composition of claim 13 wherein the co-solvent is the alcohol selected from ethanol, methanol, n-propanol, isopropanol, n-butanol, iso-butanol; diethyleneglycolmonomethylether, diethyleneglycolmonoethylether, hexafluoroisopropanol, and mixtures thereof.
17. The composition of claim 13 wherein the co-solvent comprises deionized water.
18. The composition of claim 13 wherein the co-solvent is substantially free of water.
19. A composition for removing residue from the microstructure of an object, comprising: carbon dioxide, a fluoride containing additive, a co-solvent or mixture of co-solvents capable of dissolving the fluoride containing additive, and an inhibitor comprising a polyhydric alcohol.

20. The composition of claim 19 wherein the fluoride containing additive is a quaternary ammonium fluoride selected from tetramethylammonium fluoride, tetraethylammonium fluoride; tetrapropylammonium fluoride, tetrabutylammonium fluoride, choline fluoride, and mixtures thereof.
21. The composition of claim 20 wherein the quaternary ammonium fluoride is tetramethylammonium fluoride.
22. The composition of claim 19 wherein the co-solvent or a mixture of co-solvents is ethanol, methanol, n-propanol, isopropanol, n-butanol or dimethylacetamide.
23. The composition of claim 2 wherein the co-solvent is the mixture of co-solvents ethanol and dimethylacetamide.
24. The composition of claim 19 wherein the polyhydric alcohol comprises propylene glycol.
25. A composition for removing residue from the microstructure of an object, comprising: carbon dioxide, tetramethylammonium fluoride, ethanol, dimethylacetamide, and propylene glycol.
26. A composition for removing residues from the microstructure of an object comprising:
 - carbon dioxide in a pressurized or a supercritical fluid condition;
 - from .0001 to 0.1 weight percent of an additive for removing the residues selected from a quaternary ammonium fluoride, a quaternary ammonium hydroxide, and mixtures thereof;
 - from .0005 to 0.1 weight percent of an inhibitor comprising a polyhydric alcohol;
 - and
 - from 1 to 50 weight percent of a co-solvent selected from a solvent, deionized water, alcohol, and mixtures thereof.